

DEVICE FOR CONNECTING A DRAW-OUT RAIL OF A DRAWER GUIDE
SET TO A DRAWER

The invention relates to a device for connecting a draw-out rail of a drawer-guide set to a drawer, comprising an installation fitting which is connectable to the bottom and/or to the front of the front panel of the drawer, with a catch which can be swivelled against spring force, with said catch being interlockable with the draw-out guide rail and being releasable from its locking position by a two-armed lever, held at the installation fitting, with one arm of said two-armed lever being shaped as a handle.

Installation fittings for attaching the front ends of the draw-out rails of drawer-guide sets to the bottom or to the front of a drawer, comprising levers which comprise locking projections and which are swivellable against spring force, with said levers snapping into counter-locking devices of the draw-out rail, are for example known from DE 88 02 690 U1 and DE 201 07 278 U1.

From DE 92 04 845 U1, an installation fitting of the type mentioned in the introduction is known in which installation fitting, the catch is arranged at the end of the longer lever arm of a first two-armed lever which is impinged upon in the direction of its locking position by a spring, with said first two-armed lever being swivellably held on a gudgeon of the installation fitting. On a further gudgeon of the installation fitting, a second two-armed lever is held, with the longer arm of said lever being shaped as a handle, and with said second two-armed lever serving to undo the locking connection. The shorter arm of the two-armed lever engages an arm of the first two-armed lever which is shorter by a multiple than the arm which bears the locking catch. This embodiment of the known fitting leads to a situation where, despite the long lever arm, which forms the handle, of the second lever, as a result of the long lever arm of the first lever, which lever arm bears the locking catch, only relatively little force is available to undo the locking connection between the installation fitting and the draw-out rail, so that difficulties during undoing the locking connection and lifting off the drawer can occur in particular if the drawer is heavy or laden.

It is thus the object of the invention to create an installation fitting of the type mentioned in the introduction, whose interlocking with the draw-out rail can be

released simply and without much force being applied, even if the drawer is heavy or filled with objects.

According to the invention, this object is met in that for releasing the locking connection, the other arm of the lever directly engages the locking catch or a force transmission element connected to said locking catch in the region of said locking catch. In the installation fitting according to the invention, as a result of activating the two-armed lever which comprises a handle, the force which unlocks the locking connection is directly transferred to the locking catch or to a force transmission element connected to said locking catch in the region of said locking catch, so that the locking catch is directly released from its catch, without the need for long levers or rods which transmit the force required for unlocking. The installation fitting according to the invention thus prevents the possibility of rods or lever arms being bent, which rods or lever arms transmit the unlocking forces, which bending would impede unlocking and would prevent renewed insertion of the drawer in the locking connection.

A preferred embodiment provides for the second lever arm, which comprises the handle, to be held on the underside of the installation fitting, which underside faces away from the bottom of the drawer. This results in an ergonomically favourable arrangement because the drawer can be held with both hands for the purpose of lifting it out, while the fingers grip the handle of the two-armed lever, thus activating the handle for releasing the locking arrangement.

The locking catch, which in the direction of pushing the drawer in comprises a locking catch with an inclined contact face, can engage a window-like recess in the draw-out rail so that the locking catch engages behind the front edge which delimits the window-like recess. However, a preferred embodiment provides for each draw-out rail to comprise a locking projection, for example a tab or a bent-out latch, pointing in the direction of the other draw-out rail, with the locking catch engaging behind said tab or bent-out latch.

A further embodiment of the invention provides for the locking catch, at the ends which are interconnected by a web part, to comprise formed sprung limbs which are connected to a supporting piece of the installation fitting. In this arrangement, the installation fitting can be made in one piece from an injection-

moulded plastic part, with the plastic providing the required elasticity to the sprung limbs.

Expediently, the base plate of the installation fitting or a sprung limb comprises a lateral recess which is engaged by the locking projection in its locked position. The recess can be lapped by an end stop which prevents unintentional lifting-off, or lifting-out, of the drawer from the draw-out rails.

A further embodiment of the invention provides for the installation fitting to comprise an adjustment device for lifting off the front end of the drawer from the draw-out rail. Such adjustment devices are used, in a way which is known per se, for mutually aligning the front lateral walls or front panels of drawers, and if necessary for aligning them in relation to the doors or flaps of a piece of furniture so that all the gaps are of the same width. The adjustment device can comprise a two-armed lever which is swivellably held on the supporting piece of the furniture fitting, with one arm of said lever forming an actuation handle and with the other arm bearing a wedge-shaped disk which can be inserted into a gap between the bottom of the drawer and the draw-out rail. In order to secure the set swivelling position of the wedge-shaped disk, locking recesses can be provided between the lever and the supporting piece. Such an adjustment device is known from DE 202 11 803 U1.

In order to provide adequate clearance, during height-adjustment of the front or the front panel of the drawer, to the locking catches which are located on both sides of the drawer and which are borne by the installation fittings, the windows which have been cut out from the draw-out rail are of adequate height, i.e. the locking projection arranged at the draw-out rails has sufficient clearance to the covering end stop.

Expediently, the supporting piece of the installation fitting comprises an end stop for the front end of the draw-out rail.

Below, an embodiment of the invention is explained in more detail with reference to the drawing which shows the following:

Figure 1 a longitudinal section of a drawer whose front is connected to the lateral draw-out rails by means of the installation fitting according to the invention;

Figure 2 a top view of the underside of the installation fitting according to Figure 1, connected to the drawer, in the state where it is locked onto the draw-out rail;

Figure 3 a perspective view of the installation fitting according to Figures 1 and 2 with adjustment levers and unlocking levers disconnected from said installation fitting;

Figure 4 a perspective view of the underside of the installation fitting according to Figures 1 to 3; and

Figure 5 a perspective view of the top of the installation fitting.

Figure 1 shows a diagrammatic longitudinal section of a drawing which in the usual way comprises lateral walls 1, a front panel 2 and a rear wall 3 as well as a bottom 4. The drawer is borne by lateral draw-out rails 5 which are guided in the usual way via roller elements in supporting rails 6 which are attached to the lateral walls 7 of a carcass part. At its rear end, the draw-out rail 5 comprises a Z-shaped holding part 8 whose lower limb is connected to the draw-out rail 5 and whose upper limb, which is parallel in relation to the draw-out rail, engages a recess 9 of the rear wall 3 of the drawer. On the front corner regions of the underside of the bottom 4 an installation fitting 10 is attached which comprises a locking catch 11 for interlocking with a tab-shaped latch 12 bent out of the draw-out rail 5. For the purpose of releasing the locking connection between the catch 11 and the latch 12, a double-armed lever 13 held on the underside of the holding part of the installation fitting 10 is provided, with the handle 14 of said double-armed lever being able to be easily released with good access when the drawer is pulled out from the carcass, by activation with the fingers of the hands which grip the drawer on both sides.

The drawer can easily be connected to the draw-out rails 5 which are arranged on both sides of said drawer, in that the drawer is placed onto the draw-out rails 5 and is pushed rearwards into its closed position until the recesses 9 engage

the upper limbs of the holding parts 8 and until the catches 11, which comprise inclined contact faces as shown in the drawing, engage behind the latches 12, wherein these connections can be established in that the draw-out rails 5 are held to the carcass by rear end stops, so that the drawer on the draw-out rails can be pushed into its interlocked position. For the purpose of releasing the locking connections, it is expedient if the drawer, prior to activation of the release lever 13, is pulled out to a position in which the draw-out rails 5 abut against front end stops of the supporting rails 6.

The installation fitting 10 comprises a supporting piece with a base plate 16 and a strip-shaped wall part 17 which is arranged at a right angle to said supporting piece, with these components comprising attachment bore holes 18, 19 so that the installation fitting can be installed on the front panel 2 or the bottom 4 of the drawer. The supporting piece 16, 17 of the installation fitting 10 comprises two projecting sprung limbs 20, 21, arranged parallel to each other and freely projecting rearwards and spaced apart from each other, with the ends of said limbs being connected to each other by a web part 22. The sprung locking catch 11 is connected to the side of the limb 21 which faces the draw-out rail 5 and the web part 22, with said sprung locking catch comprising an inclined contact surface 23 in the direction of insertion of the drawer. On its side facing the draw-out rail 5, the limb 21 comprises a recess 24 for the locking latch 12 which has been bent out of the draw-out rail 5, and further comprises a rectangular end stop 25 for the front of the draw-out rail. The recess 24 is covered by a plate-shaped end stop 27 so that a pocket is formed in which the locking catch 12 has sufficient play during height adjustment of the front panel 2 of the drawer. On its side facing away from the bottom 4 of the drawer, the supporting piece of the installation fitting 10, which supporting piece comprising reinforcement ribs comprises a borehole 28 in which the swivelling gudgeon 29 of the two-armed lever 13 which releases the lock is held. At its lever arm 30, which points in the direction of insertion, the lever 13 comprises a cam 31 which engages the sprung limbs 20, 21 in the region of the web 22 which interconnects said limbs at the end. The lever arm 32 which points towards the front panel 2 comprises a grip part 33 which forms a handle.

On the side of the supporting piece 4, which side faces the bottom of the drawer, in a borehole 34 of the base plate 25, the bearing gudgeon 35 of a two-armed adjustment lever 36 is held. The levers 13, 36 comprise injection-

moulded plastic parts, wherein the bearing gudgeons 29, 35 are hollow and comprise slots, and have inclined collars 37 at their ends, so that they can be pushed into the bearing boreholes until the rims of the collars 37 lap the rims of the boreholes. At one of its lever arms 38, the adjustment lever 36 comprises a wedge-shaped segment 39 which, for the purpose of adjusting the height of the front panel 2, can be swivelled into the gap between the bottom 4 of the drawer and the draw-out rail 5. At its lever arm 40 which points rearward, the other lever arm of the adjustment lever 6 comprises a handle 41 for activation. To secure the set swivelling position of the adjustment lever 36, said adjustment lever comprises projections 42, 43 which can engage associated locking recesses 44, 45 of the supporting piece.